GHG mitigation targets and potentials in large emerging economies

Comparison of pledges and estimated potentials

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Abstract: GHG mitigation targets and potentials in large emerging economies – Comparison of pledges and estimated potentials

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The outcome of the UN climate change negotiations at the COP15 in December 2009 was the Copenhagen Accord, which countries voluntarily can acknowledge alongside supplying their voluntary actions combating climate change. Much has been discussed regarding whether these pledges are "sufficient" and whether they are "fair", and several studies have been made on the countries' potentials for the GHG-emission reductions and associated costs. On this background this paper intends to analyse the pledges made by large emerging economies regarding their GHG-emission reductions in 2020 in light of their estimated potentials and costs for the same.

The countries studied in this paper are China, India, Brazil and South Africa – the BASIC group. These countries currently account for approximately 28 % of the world's GHG emissions (2005), 9.5% of the world's economy and 33.41% of the world's population.[1] These shares are projected to increase by 2020. The effort made by the BASIC countries to combat climate change will therefore be of high importance, as the ambitious goal of staying below 2 degrees is impossible without severe reductions also by these countries.

This paper takes its offset in the official letters from the BASIC countries to the UNFCCC secretariat at the end of January 2010, stating their intentions regarding GHG emission targets for 2020. The intentions regarding GHG emissions are not stated in a fixed manner such as "X% reduction from year XXXX", but rather in the way of emission intensities or reductions relative to "business as usual" pathways. It is therefore unsure what the actual emissions will be like, and it is thus important to analyse the pledges and find potential ranges of the emissions, in order to get a clearer picture of what the world's total GHG emissions will look like in 2020. This is the first part of the analysis. The second part of the analysis deals with the mitigation potentials and costs in the BASIC countries. Finally the pledges of the BASIC countries will be compared to their potentials and it will be discussed what would be an optimal burden sharing under different regimes (for instance different entrance years of BASIC countries in an international agreement).

Some analyses of the pledges made by India and China conclude that the pledges of their reductions only amount to what the countries would expect to emit in 2020 in a BAU scenario or slightly below, meaning that there is no real commitment in the pledges (see for instance www.climateactiontracker.org). This conclusion however, varies greatly with assumptions on GDP trajectories. At the same time, studies of mitigation potentials and costs in these countries indicate that their potential for emission reductions is larger than what they have submitted as voluntary targets, which indicates that a globally optimal mitigation path would require even larger efforts of them than what they have pledged so far. Given a global target for the concentration of CO_2e in the atmosphere the ETSAP-TIAM model is used to find the economically optimal burden sharing between the regions represented in the model under different

[1] Own calculations based on data from UNSTATS and UN Population Division.

regimes. This is then compared to both the pledges and other results in the literature. Finally, the pledges from the BASIC countries are compared with the GHG reduction studies and model runs in ETSAP-TIAM, both on the level of GHG mitigation and on socio-economic costs for the countries and an optimal burden for the BASIC countries will be proposed.

With the large and increasing role that the BASIC countries have in regard to energy consumption and GHG emissions, it is important that they are involved in future mitigation efforts. However, the optimal path for them to take is not necessarily clear cut, as research on integrated policies for sustainable development and GHG emission strategies shows (see e.g. Shukla et al., 2009). One of the main concerns for developing countries regarding emission targets seems to be that they may have to lower their ambitions for economic growth and development. However, research shows that this needs not be the case, and that policies and strategies taking into account both sustainable development priorities and GHG emission targets, may achieve more optimal paths and outcomes. Furthermore, some studies even show that with this approach, policies to reduce GHG emissions may actually improve sustainable development in other areas, through changes in energy efficiencies, resource use, urban and land use planning, transportation systems and behaviour etc.

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